

REMARKS

In addition to the Amendment under 37 C.F.R. § 1.116, Applicants submit the following Supplemental Amendment under 37 C.F.R. § 1.116.

In the present Amendment, claim 1 has been amended to include the recitations of claim 4, which has been canceled. Support for the amendment to claim 1 can be found in claim 4 and on page 10, lines 13-18 and lines 23-25 of the specification.

Upon entry of the Amendment, claims 1-3 will be pending.

Claims 1-4 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Mori et al., WO 03/014174, in view of Li Ming, Chinese Patent No. 1336390 (“Li Ming”).

As the Examiner points out WO 03/014174 corresponds to U.S. Publication No. 2004/0204537, which is the U.S. national stage application of WO 03/014174. Reference in the discussion below is made to U.S. Publication No. 2004/0204537, which will be referred to as Mori.

Claim 1 was has been amended to recite “(2) melt-kneading said blend for 0.5 to 5 minutes in a kneading apparatus to produce a modified ethylene-vinylcyclohexane copolymer resin.”

Additionally claim 1 has been amended to recite, “the kneading apparatus has a single-screw or twin-screw extruder, and having a former melt-kneading zone and a latter melt-kneading zone, wherein temperature in the latter melt-kneading zone is higher than that in the former melt-kneading zone.”

To establish a *prima facie* case of obviousness, all the claim limitations must be taught or suggested by the prior art.

Applicants submit that neither Mori or Li Ming (English translation) disclose or suggest a melt-kneading period of time of “0.5 to 5 minutes” in step (2) of currently amended claim 1 or that “the kneading apparatus has a single-screw or twin-screw extruder, and having a former melt-kneading zone and a latter melt-kneading zone, wherein temperature in the latter melt-kneading zone is higher than that in the former melt-kneading zone,” as recited in amended claim 1.

Mori discloses a reaction time in Example 1 (paragraph [0077]) in which maleic anhydride and 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane were added over 4 hours to a propylene-vinylcyclohexane copolymer at 140°C, and the resultant was stirred additionally for 2 hours, which reaction time [4 hours, 2 hours, or the total thereof 6 hours] is much longer than the above-mentioned melt-kneading period of time of 0.5 to 5 minutes in the present invention.

Li Ming discloses a reaction time of between 5 and 15 minutes in its claim 1, which is longer than the claimed melt-kneading period of time of 0.5 to 5 minutes.

In view of the above, Applicants submit that the present invention would not be obvious over Mori in view of Li Ming. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection.

Claims 1-4 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Oi et al., EP 1 197 501 (“Oi”) in view of Rodriguez et al., U.S. Patent No. 6,222,967 (“Rodriguez”).

To establish a *prima facie* case of obviousness, all the claim limitations must be taught or suggested by the prior art

Applicants submit that the present invention would not be obvious over Oi in view of Rodriguez because neither Oi or Rodriguez disclose or suggest a melt-kneading period of time of “0.5 to 5 minutes” in step (2) of currently amended claim 1 or that “the kneading apparatus has a single-screw or twin-screw extruder, and having a former melt-kneading zone and a latter melt-kneading zone, wherein temperature in the latter melt-kneading zone is higher than that in the former melt-kneading zone,” as recited in amended claim 1.

The Examiner asserts that Oi discloses an adhesive or laminate which may include ethylene vinylcyclohexane copolymer (claim 5). However, Applicants submit that Oi discloses only a non-modified copolymer such as a copolymer of ethylene and a vinyl compound. Oi does not disclose or suggest anything about a modified copolymer such as a modified ethylene-vinylcyclohexane copolymer resin as claimed in the present invention. Additionally, the non-modified copolymer such as a copolymer of ethylene and a vinyl compound disclosed in Oi has no functional group, so the copolymer is insufficient in its adhesiveness, coating property, and printing property with an inorganic material or a metal, as explained in the “Background of the Invention” section of Applicants’ specification.

Additionally, although Rodriguez discloses a multifunctional polyolefin, which is made by grafting a polyolefin with defined compound(s) (see claim 1), and which has functional groups, Rodriguez does not disclose or suggest a melt-kneading period of time of “0.5 to 5”

minutes” as claimed in the present invention. Rodriguez discloses the following about a time of said graft reaction:

The longer the time that the polyolefin is subjected to the reaction temperature, namely the preferred temperature of 180-220°C, the greater will be the amount of grafted ethylenically unsaturated monomer, without further degrading the molecular weight of the polyolefin” (column 8, lines 54-58) (emphasis added)

Rodriguez further discloses that the graft reaction time is “for 15 minutes and for an additional 15 minutes” (Example, column 16, lines 31-33), which is longer than the melt-kneading time of 0.5 to 5 minutes, as claimed in the present invention. Additionally, the graft reaction times specifically disclosed in other Examples of Rodriguez are also have longer graft reaction times than the claimed melt-kneading of time of 0.5 to 5 minutes.


In view of the foregoing, Applicants submit that the present invention would not be obvious over Oi in view of Rodriguez. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

U.S. Appln. No.: 10/624,512
Supplemental Amendment under 37 C.F.R. § 1.116

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Jennifer R. Leach
Registration No. 54,257

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: October 18, 2006